

## Site-directed mutagenesis

### SmCPS1 sequencing result (before Site-directed mutagenesis):

ATGGCCTCTTATCTCTACAATCCTCAGCCGCTCTCCGGCGGCCGCCGAGAATTACGCCGGCATCGGCTAAGCTTCACCTGCGGAATGTTTTCGCATCAGTGTCATGGATGGGCAGCAGCACTAAAAACCTTTCTCTCAGCTACCAACTTAATCAAGAAGAA  
ATATCAGTTGGCCACAGTAGATGCGCCGCAAGTGCATGACCACGACGGCACTACCGTTTCATCAAGGCCATGATGCGGTGAAGAATATTGAGGATCCATTGAATACATCAGGACGTTGTTGAGGACGACGGGGACGGGAGAATAAGCGTGTCCGGCTACGAC  
ACGGCGTGGGTGGCGATGATCAAGGACGTGGAAGGGCGGGACGGGCCCACTTCCTCCAGCCCTCGAGTGGATCTGCGAGAATCACTCGAGGATGGATCGTGGGGCATCAGAAGCTTTTCTGCGTCTACGATCGCTCTGCTAATACCATCGCGTGCCT  
GGTAGCCTTGAGATCGTGAATGTTCTATGCTCACAAGGTCAAAAAGAGGAGTGACGTACATCAAGGAAAAATGTGGATAAATCTATGGAGGGAAATGAGGAGCACATGACTTGTGGGTTTCAAGTGGTGTGTTCCGGCGCTTCTACAAAAAGCGAAAGCTTAG  
GCATCGAAGATCTTCTTACGATTCTCCGGCGGTGCGAGAGGTTTATCATGTACGGGAACAAAAGTTGAAAAGGATTCCACTGGAGATTATGCACAAAATACCGACATCATTATTATTAGTTTGAAGGGCTCGAAAAATTTGGATTGGGACAAACTTTGAAA  
**CTG**CAGTCAGCGACGGTTCTCTCCACCTCTCCCTCTCCACCGCCTTCGGCTTCATGCAAAACAAGGATGAAAATGTCTACCAATTCATCAAGAACACGATAGACACTTCAACGGAGGAGCGCCACACACTATTCCTCGTGCAGCTGTTTGAAGGCT  
CTGGCGATCGACCG**CTG**CAGCGCCTCGGAATTTCCCGCTTTTGTAGCCGGAGATTGCTGATTGCTTAAGCCACATCCACAAATTTTGGACGGATAAGGGAGTTTTCAGTGGGAGAGAATCGGAGTTTTCGACATTGACGATACATCCATGGGAAT  
GAGGCTTATGAGGATGCATGGATGATGTTGATCCAATGTGCTGAGGAATTTCAAGCAGAAAAGATGTAATTTCTCTGCTACGCCGGGCAGATGTCGAGTCGCCTTCTCCGATATACATCTTTACAGAGCTTCTCAGCTCCGATTTCCCGCGAGGAAAT  
CCTCGAAGATGCGAAGAATTCGCTACGATTTCTGAAAAGAAAACTAGCCAACATCAGATTCTGGATAAATGGGTATTCTTAAGCACTTGCTGATGAGATCAAGCTCGGGCTAGAGATGCCGTGGCTCGCCACCTACCCCGCTCGAGCGAAGTACT  
ACATCGAGTACTACGCCGCTCCGGCGACGTGTGATCGGGAAGACGCTGTACAGGATGCCGGAGATCAGCAACGACACGTACCACGACTAGCCAAGACGGATTTCAGAGATGCCAAGCGAAGCATCAGTTCGAGTGGCTCTACATGCAAGAATGGTACG  
AGAGCTGCGGCATCGAG**GAA**TTCTGGGATAAGCAGAAAGGACCTCTGCTTCTCTATTCTTGGCGACCGCGAGCATCTTCGAGCTCGAGAGGCCAACGAGCGAATCGCTGGGCCAAATCGCAGATCATCGCTAAGATGATCACTTCTTTCTCAACA  
GGAAACTACGTGCGAGGAGGACAAGCGAGCTCTTTGAACGAGCTCGGAAACATTAAATGGCTCAACGACACAAACGCGCGAGGAGAGAAGGTGGGGCCGTAGCATTGCGCTAGCGACCTCACTCAGTTCTCGAGGGATTGACAGATACACCCAGA  
CACCAGCTGAAAAATGCTTGAGCGTATGGCTGACGCGCTGCAACATGGCGAAGCAGACGACGAGAGCTCTTAACCAACACGTTGAACATCTGCGCCGGCCACATCGCTTCAAGGAAGAAATCTGGCGCACACGAGTACAAAACCTCTCTCAACCTA  
ACCAGCAAAATCTGTGCGCACTTCTTTCATTCAAGCGAAAAGGAGATGGGAGTAGAGGGCGAGATCGCAGCGAAATCGAGCATAAAAAACAAGGAATCTGAAGAAGACATGCAAAATGTTGGTGAAGTTGGTGTGAGAAATATGGGGCATAGATAGA  
AATATAAAGAAAGCGTTTTTGGCAGTTGCGAAGACTTATTATTACAGAGCGTATCATGCCGCCGACACATAGACACACATGTTTAAAGTGCTTTTCGAGCCAGTCGCGTGA

### After Site-directed mutagenesis:

ATGGCCTCTTATCTCTACAATCCTCAGCCGCTCTCCGGCGGCCGCCGAGAATTACGCCGGCATCGGCTAAGCTTCACCTGCGGAATGTTTTCGCCATCAGTGTCATGGATGGGCAGCAGCACTAAAAACCTTTCTCTCAGCTACCAACTTAATCAAGAAGAA  
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ACGGCGTGGGTGGCGATGATCAAGGACGTGGAAGGGCGGGACGGGCCCACTTCCTCCAGCCCTCGAGTGGATCTGCGAGAATCACTCGAGGATGGATCGTGGGGCATCAGAAGCTTTTCTGCGTCTACGATCGCTCTGCTAATACCATCGCGTGCCT  
GGTAGCCTTGAGATCGTGAATGTTCTATGCTCACAAGGTCAAAAAGAGGAGTGACGTACATCAAGGAAAAATGTGGATAAATCTATGGAGGGAAATGAGGAGCACATGACTTGTGGGTTTCAAGTGGTGTGTTCCGGCGCTTCTACAAAAAGCGAAAGCTTAG  
GCATCGAAGATCTTCTTACGATTCTCCGGCGGTGCGAGAGGTTTATCATGTACGGGAACAAAAGTTGAAAAGGATTCCACTGGAGATTATGCACAAAATACCGACATCATTATTATTAGTTTGAAGGGCTCGAAAAATTTGGATTGGGACAAACTTTGAAA  
**CTC**CAGTCAGCGACGGTTCTCTCTACCTCTCCCTCTCCACCGCCTTCGGCTTCATGCAAAACAAGGATGAAAATGTCTACCAATTCATCAAGAACACGATAGACACTTTCACCGGAGGAGCGCCACACACTATTCCTCGTGCAGCTGTTTGAAGGCT  
CTGGCGATCGACCG**CTC**CAGCGCCTCGGAATTTCCCGCTTTTGTAGCCGGAGATTGCTGATTGCTTAAGCCACATCCACAAATTTTGGACGGATAAGGGAGTTTTCAGTGGGAGAGAATCGGAGTTTTCGACATTGACGATACATCCATGGGAATG  
AGGCTTATGAGGATGCATGGATGATGTTGATCCAATGTGCTGAGGAATTTCAAGCAGAAAAGATGTAATTTCTTGTCTACGCCGGGCAGATGATCGAGTCGCCTTCTCCGATATACATCTTTACAGAGCTTCTCAGCTCCGATTTCCCGCGCAGGAAATCC  
TCGAAGATGCGAAGAATTCGCTACGATTTCTGAAAAGAAAACTAGCCAACATCAGATTCTGGATAAATGGGTATTCTTAAGCACTTGCTGATGAGATCAAGCTCGGGCTAGAGATGCCGTGGCTCGCCACCTACCCCGCTCGAGGCGAAGTACTAC  
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AGCTGCGGCATCGAG**GAG**TTCTGGGATAAGCAGAAAGGACCTCTGCTTCTCTATTCTTGGCGACCGCGAGCATCTTCGAGCTCGAGAGGCCAACGAGCGAATCGCTGGGCCAAATCGCAGATCATCGCTAAGATGATCACTTCTTTCTCAACAAG  
GAAACTACGTGCGAGGAGGACAAGCGAGCTCTTTGAACGAGCTCGGAAACATTAAATGGCTCAACGACACAAACGCGCGAGGAGAGAAGGTGGGGCCGTAGCATTGCGCTAGCGACCTCACTCAGTTCTCGAGGGATTGACAGATACACCCAGAC  
ACCAGCTGAAAAATGCTTGGAGCGTATGGCTGACGCGCTGCAACATGGCGAAGCAGACGACGAGCTCTTAACCAACACGTTGAACATCTGCGCCGGCCACATCGCTTCAAGGAAGAAATCTGGCGCACACGAGTACAAAACCTCTCTCAACCTAA  
CCAGCAAAATCTGTGCGCACTTCTTTCATTCAAGCGAAAAGGAGATGGGAGTAGAGGGCGAGATCGCAGCGAAATCGAGCATAAAAAACAAGGAATCTGAAGAAGACATGCAAAATGTTGGTGAAGTTGGTGTGAGAAATATGGGGCATAGATAGA  
AATATAAAGAAAGCGTTTTTGGCAGTTGCGAAGACTTATTATTACAGAGCGTATCATGCCGCCGACACCATAGACACACATGTTTAAAGTGCTTTTCGAGCCAGTCGCGTGA